المستوى الثاني - كيمياء - كيمياء الجزيئات الحيوية الأحماض الأمينية والبروتينات كح ٢٧٩

Mansoura University Faculty of Science Chemistry Department Subject: Chemistry Course(s): كيمياء الجزيئات الحيوية : ك ح ٢٧٩	كلية العلوم جامعة المنصورة	Second Term المستوى الثانى Time Allowed: 2 hours Full Mark: 80 Marks Date: May, 2013

Answer Following Questions

1) Write about factors which affect enzyme activity

[26.5 Marks]

2) Give an account about :

a) Amphoteric nature of amino acids and isoelectric point of proteins [14 Marks]

b) Hydrolysis of nucleic acids [13 Marks]

3) Write about β-oxidation of fatty acids. [26.5 Marks]

مع أطيب الأمنيات

أ.د محمد عبد الحافظ الفار

المستوى الثاني - رياضيات بحتة
الكيمياء الحيوية
c1/

الشعب: ك+ك.حيوي+ميكروبيولوجي+ك/نبات+ ك/حيوان+جيولوجيا+علوم البيئة. المادة: رياضيات بحتة – ر ٢٠١	كلية العلوم – قسم الرياضيات	دور مايو ٢٠١٣ الزمن: ساعتان التاريخ: ٢٠١٣/٠٦/١٦

أجب على الأسئلة الآتية: [٢٠ درجة لكل سؤال]

[1]أ. ابحث اتصال الدالة : $F(x,y)=\begin{cases}\dfrac{2xy}{x^2+y^2} & ;\ (x,y)\neq(0,0)\\ 0 & ;\ (x,y)=(0,0)\end{cases}$ ، وذلك عند النقطة $(0,0)$.

[١٠ درجات]

ب. إذا كانت $z=\sin^{-1}\left(\dfrac{x^4+y^4}{5x-3y}\right)$ فاثبت أن $x\dfrac{\partial z}{\partial x}+y\dfrac{\partial z}{\partial y}=3\tan z$. [١٠ درجات]

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[2] اذكر بدون برهان نظرية "جرين". حقق نظرية "جرين" بحساب كلا الطرفين لمعادلة "جرين" بالنسبة للتكامل :

$$\oint_c (x^2-6xy)\,dx+(y^2+2x)\,dy$$

حيث c هو المثلث المحيط بالمنطقة R المحدودة بالمستقيمات: $y=0$ ، $x+y=0$ ، $x=0$ مأخوذا في الاتجاه ضد عقارب الساعة. [٢٠ درجة]

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[٣] أ. اوجد قيمة التكامل $\iint_R (x^2+y^2)\,dx\,dy$ حيث R هي المنطقة الواقعة في الربع الأول للمستوى والمحصورة بين الدائرتين : $x^2+y^2=9$, $x^2+y^2=1$. [١٠ درجات]

ب. حل مسألة الشروط الإبتدائية :

$(\cos y+2x\sin y-4)dx+(x^2\cos y-x\sin y)dy=0$; $y(1)=0$ [١٠ درجات]

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[٤] اوجد الحل العام لكل من المعادلات التفاضلية الآتيـــة :

(i) $(x^2+xy+3y)\,dx=(x^2+2xy)dy$ [١٠ درجات]

(ii) $dx-(3\cos^2 y+x\tan y)dy=0$ [١٠ درجات]

مع التمنيات بالتوفيق ☺

المستوى الثانى - كيمياء حيوى - الأحماض الأمينية والبروتينات ٢٧٧ كم

	Mansoura University Faculty of Science Chemistry Department
Second Term Second Level Biochemistry Course Title: Amino acids & Proteins Metabolism Code No.: Biochemistry 277	May 2013 Date: 12/ 6/ 2013 Time allowed: 2 hours Full Mark: 80 Marks

Note: Express your answers by formulae, equations, pathways, figures and diagrams wherever possible,

Answer The Following Questions

Question 1: ***(20 Marks)***

A- Illustrate urea cycle and discuss hyperammonemia Type 2 and citrullinemia as two of its metabolic disorders. ***(10 Marks)***

B- Write (√) or (X): ***(10 Marks)***

i- Folic acid deficiency can be detected by excretion of N-formiminoglutamate (Figlu) following a dose of arginine. [ ]

ii- Ochronosis results in late and advanced steps of Alkaptonuria. [ ]

iii- Glycine oxidase of liver mitochondria splits glycine to CO2 and NH4 + and forms *N5,N10-methylene tetrahydrofolate.* [ ]

iv- Glycinuria results from a defect in renal tubular reabsorption. [ ]

v- Mutations in ornithine-aminotransferase decline plasma and urinary ornithine and cause gyrate atrophy of the retina. [ ]

vi - Fluid and tissue levels of tyrosine and taurine are elevated in the metabolic disorder, hyperbeta-alaninemia. [ ]

vii- The 24-hour urinary excretion of creatinine is proportional to muscle mass. [ ]

viii- In argentaffinoma, tumor cells overproduce melatonin. [ ]

ix- N-acetylserotonin glucuronide is considered ase one of the urinary metabolites of serotonin in patients with carcinoid. [ ]

x- 5-hydroxyindoleacetate is the first catabolic product of 5-hydroxytryptamine. [ ]

Question 2: ***(20 Marks)***

A- Define each of the following: **(8 Marks)**

i) Maple Syrup Urine Disease. ii) Protein quality. iii) Protein turnover iv) Hartnup disease.

B- Choose the correct answer: **(12 Marks)**

1- All the following enzymes activate the biosynthesis of amino acids by fixing inorganic ammonium ion <u>except</u> one:

a) Mammalian Glutamate dehydrogenase. b) Mammalian Glutamate synthetase

c) Bacterial asparagine synthetase. d) Mammalian asparagine synthetase.

2- The ratio of amino acids produced from daily protein degradation reutilized for new protein synthesis is .....

a) 20-25%. b) 50-75%.

c) 75-80%. d) 80-100%.

3- Lacked argininosuccinate synthase activity leads to <u>one</u> of the following metabolic disorders of urea biosynthesis:

a) Citrullinemia. b) Hyperargininemia.
c) Hyperammonemia Type 1. d) Hyperammonemia Type 2.

4 - The case in which nitrogen ingestion exceeds that excreted is called.....

a) positive nitrogen balance. b) negative nitrogen balance. c) nitrogen equilibrium.

5- The following cases are negative nitrogen balance except one:

a) Marasmus. b) Advanced cancer.
c) Kwashiorkor. d) Pregnant women.

6- All of these represent the symptoms of ammonia intoxication, <u>except</u>:

a) Tremor. b) Slurred speech.
c) Diarrhea. d) Coma and death.

7- All are glucogenic amino acids <u>except</u>:

a) Aspartate. b) Lysine.
c) Glutamate. d) Cysteine.

8- These are neurotransmitters derived from amino acids, <u>except</u>:

a) Histamine. b) Epinephrine
c) Dopamine. d) γ-aminobutyrate.

9- The metabolic defect of tyrosine aminotransferase <u>(reaction 1)</u> is detected in.....

a) Neonatal tyrosinemia. b) Tyrosinemia Type 2
c) Tyrosinemia Type 1. d) Alkaptonuria.

10- Mammalian tissues form β–alanine from the following <u>except</u>

a) Carnosine. b) Cytosine.
c) Anserine. d) Cysteine.

11- All are the metabolic disorders of branched-chain amino acids catabolism, <u>except</u>

a) Isovaleric acidemia. b) Hypervalinemia.
c) Propionemia. d) Maple syrup urine disease.

12- One of these cases is associated with low urinary levels of 3-methylhistidine:

a) Wilson's disease. b) Carnosinuria.
c) Homocarnosinosis. d) Histidinemia.

Question 3: ***(20 Marks)***

Give an account on:

i- Histidine compounds and metabolism.
ii- Phenylketonuria.
iii- Biosynthesis of glycine from choline.
iv- Biosynthesis of creatine and creatinine.

Question 4: ***(20 Marks)***

Demonstrate the following by chemical equations:

i- Biosynthesis of serotonin and melatonin.
ii- Biosynthesis of proline from glutamate.
iii- Catabolism of L-cysteine via two pathways.
iv- Biosynthesis of epinephrine and norepinephrine from tyrosine.

Examiner: Dr. Nivin A. Salah

المستوى الثانى كيمياء حيوية - الدم والغدد الصماء ٢٠٢٢

Final Exam. Blood &Endocrine. 2nd Level Biochemistry Total (60 Marks) 2Hrs May 2013		Mansoura University Faculty of Science Zoology Department Z. 222

PART (I)

Answer the following questions using labeled diagram. (30marks)

1) Briefly illustrate the sites of erythrocyte production in the body during human life. Name the pathophysiological classification of anemia.

2) Discuss in short the role of essential factors in erythropoiesis.

3) Shortly illustrate the thrombopoiesis

PART (II)

Question 1. A) TRUE or FULSE (Correct) ..... (5 Marks)

1. The endocrine system acts through neurotransmitters called hormones that influence growth, development, and metabolic activities.
2. Endocrine glands have ducts that carry their secretary product to a surface.
3. A negative feedback system causes a reversal of increases and decreases in body conditions in order to maintain a state of stability or homeostasis.
4. Type 1 diabetes is an auto immune disease where antibodies destroy the pancreatic islets.
5. Some glands have endocrine and non-endocrine regions, which function differently.
6. Growth hormone is a protein that stimulates the growth of bones, muscles, and other organs by promoting protein synthesis. This hormone is produced by the pituitary gland.
7. The adrenal cortex consists of two regions, with each region producing a different group or type of hormones.
8. The gonads, the primary reproductive organs, are only responsible for secreting hormones and are considered to be endocrine glands.
9. The heart also acts as an endocrine organ in addition to its major role of pumping blood.
10. Diabetes sometimes forms during pregnancy, and usually ends when the child is born.

Question 1. B) Match each of the following homeostatic imbalances with the hormone deficiency (or overproduction). ..... (5 Marks)

	Column A		أكتب الحرف المناسب	Column B
A	Gigantism	1		Oversecretion of catecholamine's.
B	Diabetes insipidus.	2		Insulin deficiency.
C	Sympathetic N. S. overactivity.	3		Hyposecretion of ADH.
D	Grave s Disease.	4		Overproduction of GH.
E	Diabetes mellitus	5		Hyper secretion of thyroxin hormone
		6		Hyposecretion of calcitonin.

Question 2. Choose the correct answer. .....(20 Marks)

(تعليمات الاجابة) فى السؤال الثانى أكتب رقم الفقرة قى السؤال مع كتابة الاجابة بجانب الرقم .

1- **Thyrotropin (or TSH) stimulates the thyroid gland to release:**
A) Thyroxin B) calcitonin C) parathormone D) thymosin

2- **Cortisol is released from the:**
A) Parathyroid B) adrenal cortex C) hypothalamus D) posterior pituitary

3- **Aldosterone is produced by the _____ gland and it causes reabsorption.**
A) thyroid; sodium B) pituitary; water C) adrenal; sodium D) thymus; white blood cells

4- **Blood calcium is lowered by the hormone:**
A) Calcitonin B) glucagon C) adrenalin D) thyroxin

5- **An over secretion of GH (or STH) would lead to:**
A) Goiter B) diabetes C) infertility D) gigantism

6- **Which pair of hormones acts antagonistically?**
A) Glucagon and Cortisol B) Insulin and adrenalin
C) Cortisol and insulin D) Glucagon and adrenalin

7. **This hormone would be at an increased level in a mother who is breast feeding.**
A) Thyroxin B) Prolactin C) Aldosterone D) Insulin

8. **Steroid hormones are made from precursor molecules of:**
A) Cholesterol B) a single modified amino acid
C) amino acid chains D) fatty acids

9. **Which hormone is most commonly associated with the "fight or flight" response to stress?**
A) Insulin B) adrenalin C) calcitonin D) prolactin

10. **These two hormones are produced by the hypothalamus but stored in the posterior pituitary.**
A) Insulin and glucagon B) ADH and oxytocin
C) growth hormone and prolactin D) thymosin and adrenalin

11. **Thyroxin (or thyroid hormone) travels through the bloodstream acting on many target calls to increase:**
A) Blood sugar B) blood calcium C) metabolism D) anti-inflammatory reactions

12. **Calcium is released from bone into the bloodstream due to the action of:**
A) ADH B) GnRH C) LH D) PTH

13. **Hyposecretion of thyroxin could be caused by a decrease in the release of:**
A) TRH or TSH (Thyrotropin) B) TSH or ACTH
C) STHRH or STH D) FSH or LH

14. **CRH (corticotropin releasing hormone) stimulates the release of _____ from the anterior pituitary.**
A) ACTH (adrenocorticotropic hormone) B) TSH (thyrotropin)
C) STH (somatotropin) D) PRL (proiactin)

15. **The major target for ACTH is the:**
A) Pancreas B) thyroid C) liver D) adrenal

16. **The overall effect of stimulation by ACTH on the target you chose in the question above is:** A) Increased blood sugar B) anti-inflammatory response
C) Increased water conservation by kidney D) both A and B

17. **Too much ACTH release could cause hyperglycemia (high blood sugar). Since sugar is a solute, this could also cause:**
A) Increased blood pressure B) increased blood calcium
C) decreased body temperature D) decreased metabolism

18. **Another hormone that can affect blood pressure by directly influencing sodium concentration in the blood is:**
A) Aldosterone B) antidiuretic hormone C) glucagon D) parathormone

19. **A patient that is losing weight and suffering from an increased body temperature could be hyper secreting:**
A) AD H B) GR H C) PRL H D) TR H

20. **All of these cause increased secretion of hormones from the adrenal medulla EXCEPT:** A) High blood glucose level. B) Emotional excitement.
C) Stress D) Exercise.

المستوى الثانى - كيمياء حيوية - ديناميكا حرارية لـ ٢٤١

Mansoura University
Faculty of Science
Chemistry Department
Chem. 241
Physical Chemistry (1)
(Chem.Thermodynamics)

Second Year Biochem.
2/6/2013
Time Allowed: 2 hrs
Full Mark: [60]
Final Exam

Answer the following questions:

(1) Complete the following: (each of 1 mark = 10 marks)

a) Enthalpy minus absolute temperature multiplied by entropy ---------- b) Adiabatic means----------c) Change in entropy is equal ---------- d) Heat capacity is ---------- e) Joule experiment proves ---------- f) For expansion of an ideal gas, for isothermal change the change in enthalpy is ---------- and for adiabatic change is ---------- g) During the adiabatic expansion of an ideal gas against atmospheric pressure, the internal energy will ---------- h) When there is only exchange of heat between system and surroundings the process is said to be ---------- i) The properties which are independent of the total amount of the substance of the system are called---------- j) For adiabatic expansion of an ideal gas the relation between volume and temperature is ----------

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2) Discuss the following:

a) Effect of temperature on ΔG° and K_{eqm} (10 marks)

b) Formulation of the third law of thermodynamics and how entropy and change in free energycan determined from it? (10 marks)

c) Entropy of an ideal gas (5 marks)

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3) a) For a certain process, ΔS (system) > 0 the process: (a,b,c each of 3 marks)

i-is spontaneous ii- is isothermal iii- is endothermic iv- is at equilibrium

b) The equilibrium constant for a chemical reaction will be equal to one when:

i) $\Delta H > 0$ *and* $\Delta S < 0$ ii) $\Delta H > 0$ *and* $\Delta S > 0$ iii) $\Delta H < 0$ *and* $\Delta S > 0$ iv) $\Delta H = 0$ *and* $\Delta S = 0$

c) The efficiency of an engine that is working between a lower temperature 27°C and a higher temperature 227°C is:

i) 0.232 ii) 0.881 iii) 0.946 iv) 1.000

d) An ideal gas (C_p = 13.3 J mol^{-1} K^{-1}) is expanded reversibly and adiabatically from a volume of 1 L at a pressure of 76 cm Hg and temperature 27 °C until the volume is 2 L calculate: a) the final temperature and pressure of the gas b) q, w, ΔU and ΔH for the process. (16 marks)

Examiner: Prof. Dr. Abd El-Aziz S. Fouda

المستوى الثاني - كيمياء حيوية - أيض الكربوهيدرات وأيض الدهون ٢٠١٣

	Mansoura University **Faculty of Science** **Chemistry Department**
Second Term **Second Level Biochemistry** **Course Title: Metabolism of carbohydrates and lipids** **Code No.: Biochemistry 275**	**Date: 29/ 5/ 2013** **Time allowed: 2 Hours** **Full Mark: 60 Marks**

Note: Express your answers by formulae, equations, pathways, figures and diagrams wherever possible,

Answer the following questions

Question 1: (20 Marks)

A- Choose the correct answer: (15 Marks)

1- *Which of these is considered as the purpose of Hexose monophosphate shunt:*
a) ATP and FAD. b) Hexoses and NAD.
c) Hexoses and NADPH + H^+. d) Pentoses and NADPH + H^+.

2- *Thyroxine is a hyperglycemic hormone because it increases the blood glucose level by……*
a) stimulating gluconeogenesis. b) inhibiting glycogenolysis.
c) decreasing the intestinal absorption. d) inhibiting gluconeogenesis.

3- *One of the following is NOT from the factors increasing the activity of pancreatic lipase……*
a) Number and length of fatty acids. b) Degree of unsaturation of fatty acids.
c) Amount of glycerol. d) Bile salts and calcium ions.

4 - *Which of the following hormones is a hypoglycemic?*
a) ACTH. b) Adrenaline.
c) Insulin. d) Glucagon.

n is caused by deficiency of enzyme ……
a) Glucose-6-P-dehydrogenase. b) 6-phosphogluconoate dehydrogenase
c) Glucose kinase.. d) Gluconolactone hydrolyase.

6- *Complete oxidation of palmitic acid is associated with these **except one**:*
a) Passing through 7 x β-oxidation. b) Production of 8 x acetyl CoA.
c) Consuming 29 ATPs. d) Production of 129 ATPs.

7- *These are the sources of acetyl-CoA, **except**:*
a) Detoxificatio reactions. b) Amino acids.
c) Kreb's cycle. d) Fatty acids.

8- *The ATP yield from TCA cycle starting with two molecules of acetyl CoA is……*
a) 15 ATP. b) 24 ATP.
c) 12 ATP. d) 15 ATP.

9- *Hyperglycemia in diabetes mellitus is due to the following **except**:*
a) Increased rate of gluconeogenesis. b) Decreased uptake of glucose by tissues.
c) Decreased rate of glycogenesis. d) Increased rate of lipogenesis.

10- *One of the following statements is NOT related to diabetes mellitus:*
a) Decreased protein anabolism. b) Decreased uptake of amino acids by muscles.
c) Weakness and wasting of muscles. d) Decreased protein catabolism.

11- *Cataracts formation may result from the following **except**:*
a- Galactosemias. b- Accumulation of fructose and sorbitol.
c- Cori's disease d- Accumulation of galactose and galacitol.

12- *These are normoglycemic causes of glucosuria **except**:*
a- Pregnancy. b- Renal glucosuria.
c- Diabetes mellitus. d- Phlorizin.

*13- All the following are glycogen storage diseases **except** :*

a- Type I (Von Gierke's disease). b- Faintness.
c- Type III (Cori's disease). d- Type V (McArdle's syndrome).

14- These are the causes of Ketosis, **except one**:

a- Starvation. b- Diabetes mellitus.
c- High dietary protein. d- High intake of fat.

15- Refsum's disease is an inherited **defect in**.....

a- phytanic acid. b- α-oxidation.
c- phytol. d- protein kinase.

B- Demonstrate how can glucose-6-phosphate be converted to xylulose-5-phosphate according to pentose phosphate shunt. (7 Marks)

Question 2: (20 Marks)

A- Write an account on the following: (8 Marks)

i- Ketogenesis. **ii- Hereditary fructose intolerance.**
iii- Glucose-renal threshold. **iv- Glucose tolerance test.**

B- What are the effect of glucagon, insulin and c.AMP on glycogenolysis. (6 Marks)

C- Illustrate by equations the steps of β-oxidation of even number fatty acid. (6 Marks)

Question 3: (20 Marks)

A- What are the sources of glucose in gluconeogenesis and discuss the three reactions in glycolysis reversed in gluconeogenesis. (5 Marks)

B- Demonstrate the following by chemical equations: (10 Marks)

i- Glyoxylate cycle.
ii- Glucuronic acid pathway.

C- Biosynthesis of new triglycerides. (5 Marks)

With my Best Wishes ***Dr. Nivin A. S. Islam***

المستوى الثانى كيمياء حيوى - أيض الأحماض النووية لعام ٢٠١٣

Mansoura University
Faculty of Science
Chemistry Department
Subject: Chemistry
Course(s): Nucleic acids Metabolism

2nd Level Biochemistry Students
Date : Jan. 2013
Time Allowed : 2 hours
Full Mark: 80 Marks

ANSWER THE FOLLOWING QUESTIONS

Express your answer by formulae equations, pathways, diagrams or figures wherever possible.

I. Compare between the following: [24 Marks]

1) *Primary gout & Secondary gout.*
2) *Adenine phosphoribosyltransferase deficiency & Lesch-Nyhan Syndrome.*
3) *Azaserine & Folate analogues.*

II. [22 Marks]

a) *True or false? and correct if statement is false* [6 Marks]

1. Purines bond to the first carbon of the sugar at their N9 atoms, while pyrimidines bond to the sugar at their N1 atoms. ( )
2. If one purine and one pyrimidine formed a pair their width will fit the DNA double helix. ( )
3. Nonhepatic tissues depend on preformed purines that are synthesized in the liver and transported by red blood cells. ( )
4. PRPP synthetase requires inorganic phosphate as an allosteric activator. ( )
5. In patients with HPRT deficiency, the fibroblasts show accelerated rates of purine formation. ( )
6. Amidophosphoribosyl transferase is activated by AMP, GMP and pyrimidine nucleotides. ( )

b) *Complete the missing parts in the following statements*: [16 Marks]

i. The building block of nucleic acids is called……[1]…..which consists of ……[2]…….. in addition to a phosphate group.

Best wishes for our dear students,

Dr. Amr Negm

ii. The ribose 5-phosphate, which is required for the denovo synthesis of purines, comes from three sources: ……[3]……., ……[4]……., ……[5]…….

iii. Conversion of nucleoside monophosphates to diphosphates is catalyzed by ….[6]…., and then the diphosphates are converted to the triphosphates by ….[7]….

iv. Conversion of ribonucleotides to the deoxy forms occurs exclusively at the diphosphate level and it is catalyzed by…..[8]…….

v. Human tissue contains two phosphoribosyl transferases…[9]….,…[10]…..

vi. Purines derived from food do not participate in the salvage pathways but they are mostly converted to …[11]…..

vii. The treatment of acute gout includes the administration of ……[12]……., ……[13]……., ……[14]……., ……[15]…….

viii. ……[16]….is a suicide inhibitor and works through irreversible inhibition of thymidylate synthase.

III. **[34 Marks]**

a) Illustrate the denovo biosynthesis of purine and pyrimidine nucleotides. **[17 Marks]**

b) Describe the different pathways for pyrimidine catabolism. **[17 Marks]**

Best wishes for our dear students,

Dr. Amr Negm

المستوى الثانى - كيمياء حيوى - الفيتامينات لعام ٢٠١٣

Mansoura University
Faculty of Science
Chemistry Department
Subject: Chemistry
Course(s): Vitamins

2nd Level Biochemistry Students
Date : June 2013
Time Allowed : 2 hours
Full Mark: 80 Marks

ANSWER THE FOLLOWING QUESTIONS

I. ***Do as shown between the brackets:*** **[25 Marks]**

1. Thiamin pyrophosphate is a cofactor for nonoxidative decarboxylation reactions. (Give example with enzymatic equations)
2. Dry and Wet beriberi. (Compare between them)
3. The lipid-soluble vitamins are hydrophobic compounds. (Draw the structure of each vitamin)
4. Pernicious Anemia. (Define)
5. Hypervitaminosis C. (Define)

II. ***Complete the missing parts in the following statements:*** **[25 Marks]**

1) ……[1]….. is the amount of a compound needed daily to maintain good nutrition in most healthy people.

2) Vitamin D itself is inactive, it requires modification to the active metabolite .....[2]....., and its deficiency leads to.....[3].....in children and .....[4]..... in adults.

3) The main function of vitamin E is ……[5]…… in cell membranes and plasma lipoproteins.

4) Three compounds have the biologic activity of vitamin K: ……[6]…… which is found in green vegetables; ……[7]……, synthesized by intestinal bacteria, and ……[8]…….

5) The deficiency of niacin causes ……[9]……., which is characterized by ……[10]……, ……[11]……, ……[12]…….

6) The Nutritional Value of the vitamins can be lost by ……[13]……, ……[14]……, ……[15]…….

7) Vitamin B12 absorption requires two binding proteins: ……[16]……, ……[17]…….

باقى الأسئلة فى الخلف

Best wishes for our dear students,

Dr. Amr Negm